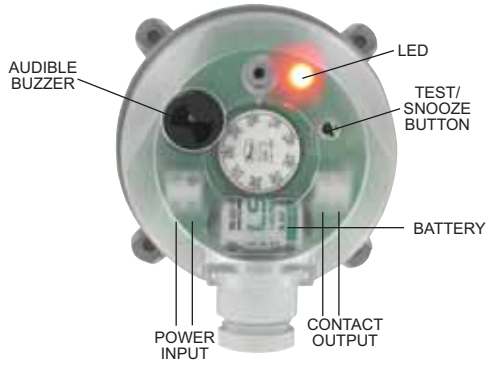
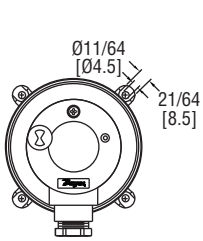
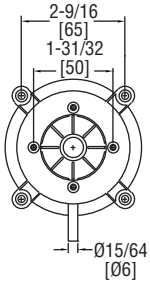
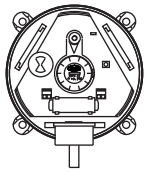
Series BDPA Adjustable Differential Pressure Alarm

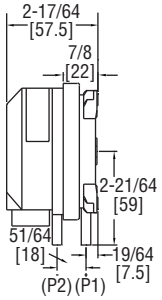
Specifications - Installation and Operating Instructions








INSIDE VIEW



The Series BDPA Adjustable Differential Pressure Alarm with built-in audible and visual indication is designed for overpressure, vacuum, and differential pressure applications. The scaled adjustment knob allows changes to the switching pressure to be made without a pressure gage. The BDPA is available with settings from 0.08 in w.c. (20 Pa) to 20 in w.c. (5000 Pa). The silicone diaphragm and PA 6.6 body make the Series BDPA perfect for use with air and other noncombustible gases. The Series BDPA can be used in monitoring air filters and ventilators.

Use only with mediums such as air, or other noncombustible or non-aggressive gases. Otherwise operating faults or accidents may occur.

Alarm Function

When system pressure reaches alarm point on knob, LED will flash once every 30 seconds while alarm buzzer will sound every 60 seconds. This indication will continue until alarm condition is corrected or snooze button is pressed. If snooze button is pressed the audible alarm and LED indication will cease for a three day period. If after three days the alarm condition persists, the alarm buzzer and LED indication will restart to notify the alarm condition is still present.

Mounting Alarm

First check the pressure alarm to ascertain whether any damage is visible on the housing. If the housing is leaky because of damage, the pressure switch must not be used.

Switching pressure specifications apply to vertical installation which is also the recommended position with pressure connections pointing downwards.

Only if there is no potential for condensate forming can you mount the pressure switch horizontally. In this case, however, the switching values are approximately 0.08 in w.c. (20 Pa) higher as indicated on the scale. In the horizontal position, the pressure switch should be mounted 'lying down' only (that is to say with the electrical connections pointing upwards). Do not mount the pressure switch in a hanging position (that is to say, not 'overhead' with the electrical connections pointing downwards). Otherwise the device will function inaccurately.

a) Mounting with Screws or Brackets

1. To mount the pressure switch, L-shaped A-288 and S-shaped A-289 mounting brackets can be ordered separately. To secure the device on the rear side of the housing, only use the sheet metal screws (3.5 x 8 mm) which are supplied together with the mounting brackets. Under no circumstances must you use longer screws. Otherwise, the base of the housing could be punctured resulting in the pressure switch leaking.
2. You can also mount the pressure switch directly on a wall. To do this use screws with a maximum diameter of 0.315″ (8.0 mm), if you use the outer mounting lugs to screw the device in place. Do not tighten the screws so much that the base of the device is deformed. Otherwise, the pressure switch can be shifted out of position, or leak.

Installing Hoses

Important: Pressure tubing cannot be kinked. Pay particular attention to this point if you run hoses over an edge. It is better to form a loop. If the hoses are kinked, the device cannot function accurately.

SPECIFICATIONS

Service: Air and noncombustible, compatible gases.
Wetted Materials: Diaphragm material: Silicone; Housing material: Switch body: PA 6.6 and POM; Cover: Polystyrene.
Temperature Limits: Process ambient temperature from 32 to 122°F (0 to 50°C).
Pressure Limits: Max. operating pressure: 40 in w.c. (10 kPa) for all pressure ranges.
Electrical Rating: 1.0 amp 30 VDC/VAC.
Switch Type: SPDT.
Alarm Indication: Red LED and audible alarm.
Alarm Level: Approximately 90 db at 4″ (10 cm).
Alarm Acknowledge: Button press.
Power Requirements: 16 to 30 VDC, 18 to 30 VAC or battery. If line power supplied battery acts as back-up if power loss.
Type of Battery: 1/2 AA LS14250.
Battery Life: Approximately 1.5 years with 3.6 V/1.2 Ah.
Repeatability: ±15% FS.
Electrical Connections: Screw terminals. M20x1.5 with cable strain relief or optional 1/2″ NPT connection.
Process Connections: 5/16″ (7.94 mm) outside diameter tubing, 1/4″ (6.0 mm) inside diameter tubing.
Mounting Orientation: Vertically, with pressure connections pointing downwards.
Weight: 6.1 oz (173 g).
Enclosure Rating: IP21.
Agency Approvals: CE, RoHS.

a) For connection to the pressure switch two fittings inherent in the housing are provided for hoses with an internal diameter of 1/4″ (6.0 mm).
   1. Connect a hose with the higher pressure to socket P1 which is located on the lower section of the housing.
   2. Connect a hose with the lower pressure to socket P2 which is located on the middle section of the housing.

After you have installed the hoses, it is absolutely essential to check them for tightness of fit at the connection points, and to make sure that they run without any kinks.

Electrical Connection

Work on electrical installations must only be carried out by electricians who are specifically trained for this purpose.

⚠CAUTION First make sure that there is no voltage on the connecting cable while you are working on the electrical connections. Otherwise, a possible electric shock may result and the connected equipment may be damaged. For cable gland models, the seal in the screw cable connection is designed for cables with alternative sheath diameters of 0.275″ (7 mm) or 0.393″ (10 mm). Only use these sizes – otherwise the screw cable connection cannot seal adequately.

1. If using a 0.275″ (7 mm) connecting cable, you can line up the press nut, the plain washer and the sealing ring directly on the cable.
2. If using a 0.393″ (10 mm) connecting cable, you must first break the inner rubber ring out of the sealing ring directly on the cable. Then line up the press nut, the plain washer and the sealing ring on the cable.

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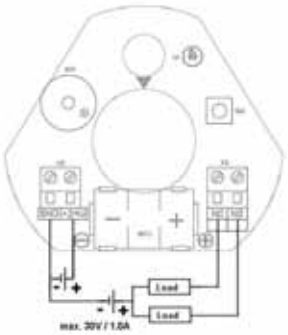
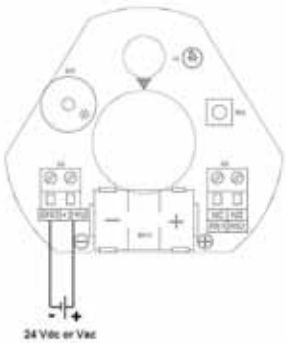
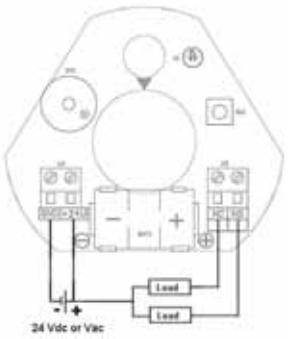
WIRING DIAGRAMS



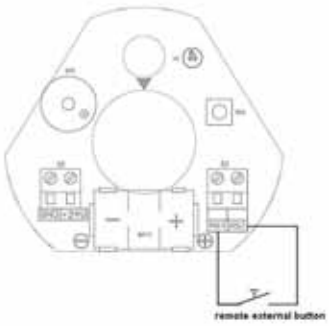
BATTERY POWERED; SWITCH OUTPUT CONNECTED



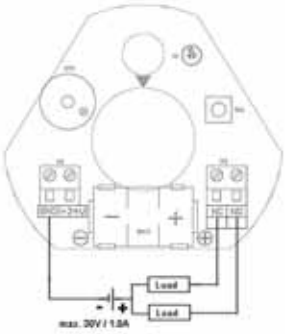
24 VAC/VDC POWER WIRING
BATTERY ACTS AS BACK-UP POWER



24 VAC/VDC LINE POWER WIRING; SWITCH OUTPUT CONNECTED
BATTERY ACTS AS BACK-UP POWER



REMOTE SNOOZE WIRING
SHOWN BATTERY POWERED
CAN BE COMBINED WITH LINE POWER



24 VAC/VDC LINE POWER; SWITCH OUTPUT CONNECTED
SEPARATE POWER FOR SUPPLY WITH SWITCH LOOP

Setting the Pressure Range
Make absolutely certain that there is no voltage on the electrical connections before you carry out any setting on the pressure switch. Otherwise, it could be fatal if you accidentally touch the electrical connections or the metal adjusting screw while you are performing the settings.

a) Use the adjustment dial to set the pressure which should trip the alarm on during an increase of pressure.
   1. The indications on the dial are only correct for the vertical mounting position.
   2. When the pressure falls, the alarm returns to its resting position as soon as the pressure falls below the dead band.

Attaching Cover

a) Insert the screw cable connection into the recess provided for this purpose on the housing.
b) Then place the housing cover in position and screw it down evenly on to the pressure switch.

Testing the Setting
Do not operate the system until the housing is closed. Otherwise there is the possibility of a electric shock if you accidentally touch live parts. Check the trip and reset pressures by slowly increasing the pressure and then allowing it to fall again. To test that audible alarm and LED light are functioning properly without connected pressure, press the snooze button. The alarm buzzer and LED will activate for 1 second.

Important: Observe the maximum permissible operating pressure of 40 in w.c. (10 kPa) which is indicated in the data sheet. Otherwise the pressure alarm may be damaged.

MAINTENANCE
Upon final installation of the Series BDPA Adjustable Differential Pressure Alarm, no routine maintenance is required other than possible battery replacement if used. Roughly one week before the battery goes dead, the LED will pulse 3 times once every minute while every fifth minute the alarm buzzer will synchronize with the LED giving off 3 short signals notifying of a low battery. A periodic check of system calibration is recommended. The Series BDPA is not field serviceable and should be returned if repair is needed (field repair should not be attempted and may void warranty). Be sure to include a brief description of the problem plus any relevant application notes. Contact customer service to receive a return goods authorization number before shipping.

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